SECTION III - A QUALITY CRITERIA FOR RESOURCE MANAGEMENT SYSTEMS

Introduction

This section provides information that is used when developing a **Resource Management System** (**RMS**) to treat or prevent problems associated with soil, water, air, plant, and animal resources (SWAPA). An RMS is a combination of conservation practices that when applied will meet or exceed minimum **Quality Criteria** for all identified resource concerns.

During the conservation planning process, the five natural resources and their associated social, economic, and cultural considerations are assessed to identify concerns affecting the use, management, and sustainability of each SWAPA resource. (Refer to Step 3 and Part 600.40 of the NRCS National Planning Procedures Handbook for additional guidance and tools to use in the inventory process.) Quality Criteria establish the minimum level of treatment needed in an RMS to adequately treat the identified natural resource concerns. Resource sustainability, protection, and conservation are achieved when the Quality Criteria for SWAPA are met.

An RMS must be developed in accordance with all applicable federal, state, and local regulations and program requirements, including appropriate

consideration of ecological, economic, and social factors. An RMS is considered fully applied when all of the conservation practices that make up the system have been implemented according to the applicable Conservation Practice Standards in Section IV of the FOTG.

The tables in Section III-A establish Quality Criteria for treatment of concerns affecting the following natural resources:

<u>Soil</u> Water

Air

Plants

Animals

The tables include lists of conservation practices that are often used to treat the identified concerns or problems, and also contain recommendations for tools that can be used to measure current conditions and effects of practices.

SOIL			
RESOURCE CONSIDERATION: EROSION			
Description of Concerns and Problems	Quality Criteria for Treatment	Frequently Used Practices	Assessment Tools
Sheet and Rill Erosion – Soil particles are removed from the soil surface by water flowing uniformly across the land. Erosion is adversely affecting the long-term sustainability of the soil resource.	Cropland – Soil loss does not exceed the sustainable soil loss tolerance amount (T) for the rotation of the Management Unit.	Conservation Cover 327; Conservation Crop Rotation 328; Cover Crop 340; Critical Area Planting 342; Residue Mgmt 329A, 329B, 329C, and 344.	FOTG – Section I: Revised Universal Soil Loss Equation (RUSLE).
Wind Erosion – Fine soil particles are selectively removed from the soil surface and redistributed by wind. Erosion is adversely affecting the long-term sustainability of the soil resource, or causing damage to crops, other resources, or property.	Soil loss does not exceed the sustainable soil loss tolerance amount (T) for the soil mapping unit or the crop tolerance level, whichever is more restrictive. No visual or measurable damage to property, crops, land, or water.	Conservation Cover 327; Cover Crop 340; Critical Area Planting 342; Residue Mgmt 329A, 329B, 329C, and 344; Windbreak/Shelterbelt Establishment 380.	Visual evidence of blowing soil, deposition, or damage due to wind-borne particles.
Ephemeral Gully – Concentrated flow of runoff water is causing re-occurring gullies on cropland, adversely affecting the long-term sustainability of the soil resource. These gullies are usually obscured by tillage operations.	Affected areas are stabilized and ephemeral gully erosion is controlled. No recent formation of rills.	Conservation Cover 327; Critical Area Planting 342; Diversion 362; Residue Mgmt 329A, 329B, 329C, and 344.	Visual evidence of rills, ephemeral gullies, and deposition.
Classic Gully – Concentrated flow of runoff water is producing eroded channels that are too deep to be obscured by normal farming operations. These gullies are interfering with agricultural and other land uses and may enlarge by head-cutting and lateral widening.	Head cutting is stopped. Channel bottom and side slopes are stabilized.	Diversion 362; Grade Stabilization Structure 410; Grassed Waterway 412; Lined Waterway or Outlet 468; Subsurface Drain 606; Water and Sediment Control Basin 638.	Visual evidence of active head cutting, sloughing of side-slopes, or changes in cross section and/or gully length. Historical photography and client records may also be helpful.

SOIL			
RESOURCE CONSIDERATION: EROSION (continued)			
Description of Concerns and Problems	Quality Criteria for Treatment	Frequently Used Practices	Assessment Tools
Soil Mass Movement – Unstable soil on sloping land is resulting in a large volume of soil movement. Soil slippage, landslides or slope failure is causing physical damage to vegetation, limiting land use, or creating a safety hazard.	Soil mass movement is prevented or reduced to a rate that no visual or measurable damage to property, crops, land, or water is apparent.	Critical Area Planting 342; Diversion 362; Grade Stabilization Structure 410; Grassed Waterway 412; Lined Waterway or Outlet 468; Subsurface Drain 606.	Visual evidence of massive soil movement. Historical photography and client records may also be helpful.
Soil Deposition – Eroded soil is moved and redeposited at another location by water or wind, causing physical damage to vegetation, limiting land use, or creating a safety hazard.	Deposition is prevented or reduced to a rate that no visual or measurable damage to property, crops, land, or water is apparent.	Conservation Cover 327; Critical Area Planting 342; Grade Stabilization Structure 410; Water and Sediment Control Basin 638.	Visual evidence of soil deposition.
Streambanks – Sloughing of streambanks is caused by unstable soils, flow obstructions, unstable channel bottoms, livestock, or equipment use. Bank erosion is impairing adjacent land uses, riparian habitat, or water quality.	Streambanks are stabilized and not subject to accelerated erosion. (The actions of the decision maker do not contribute to bank sloughing and are controlled to the extent technically and economically feasible.) Erosion is reduced to a rate that will not cause interference with the intended uses of land or water.	Critical Area Planting 342; Fence 382; Streambank and Shoreline Protection 580; Use Exclusion 472.	Visual evidence of unstable banks. "Stream Visual Assessment Protocol" (NRCS, 1999).
Beach or Wave Induced – Soil is eroded by wind and wave action, causing physical damage to vegetation, limiting land use, or creating a safety hazard. Roads, buildings, and other structures may be damaged.	Erosion is reduced to a rate that will not cause interference with the intended land use.	Critical Area Planting 342; Streambank and Shoreline Protection 580; Windbreak/Shelterbelt Establishment 380.	Visual evidence of blowing soil, deposition, or damage due to wind and wave action.

SOIL			
RESOURCE CONSIDERATION: EROSION (continued)			
Description of Concerns and Problems	Quality Criteria for Treatment	Frequently Used Practices	Assessment Tools
Construction Sites – Erosion is not controlled, resulting in excessive movement of soil off-site.	Erosion on construction sites is controlled to prevent off-site sedimentation in accordance with state and local laws.	Critical Area Planting 342; Diversion 362; Water and Sediment Control Basin 638.	Visual evidence of off-site soil movement and deposition.
Roadbanks and Scoured Areas – Sloughing of banks is caused by unstable soils, flow obstructions, or inappropriate use of equipment. Erosion is impairing the use or maintenance of an area.	Roadbank and scour erosion is reduced to a rate that will not cause interference with the intended land use or contribute to offsite damages.	Critical Area Planting 342; Diversion 362; Fence 382; Water and Sediment Control Basin 638.	Visual evidence of rills, gullies, and deposition.

SOIL			
RESOURCE CONSIDERATION: CONDITION			
Description of Concerns and Problems	Quality Criteria for Treatment	Frequently Used Practices	Assessment Tools
Soil Tilth – Soil tilth is not adequate to support the desired level of plant growth. (Soil tilth is defined as a physical soil condition based on suitable combinations of mineral, air, water, and organic matter,	The actions of the decision-maker improve the physical condition of the soil and eliminate or reduce the identified tilth problem to a level that does not impair plant growth.	Conservation Crop Rotation 328; Residue Mgmt 329A, 329B, 329C, and 344; Subsurface Drain 606.	"Maryland Soil Quality Assessment Book" (NRCS, December, 1997). (http://www.statlab.iastate.edu /survey/SQI/pdf/MDd.pdf)
resulting in a proper medium in which microbial activity and chemical reactions can occur.)	The calculation of the Soil Condition Rating Index value will be a positive value.		Soil Quality Test Kit Guide. (http://www.statlab.iastate.edu/survey/SQI/kit2.html)
Soil Compaction – Excessive compression of soil particles and aggregates by equipment, livestock, or natural consolidations is adversely affecting plant-soil-moisture-air relationships.	Compaction is reduced by limiting traffic on agricultural fields and other areas, especially when wet. There are no active pans (compacted soil layers) that reduce water infiltration or restrict rooting depth.	Conservation Crop Rotation 328; Residue Mgmt 329A, 329B, 329C, and 344; Fence 382; Subsurface Drain 606.	NRCS Soil Conditioning Index. (ftp://ftp.nccs.nrcs.usda.gov/p ub/agronomy/SCIfiles/latest_r evisions. Download the file named <sciver22.xls> or the</sciver22.xls>
	The calculation of the Soil Condition Rating Index value will be a positive value when soil crusting is an identified problem.		latest version with a higher number).
Soil Contamination – Excess accumulation of animal wastes, organic byproducts, chemical content, salinity, selenium, boron, or heavy metals are restricting the desired use of the soil. Contaminants include desirable and undesirable chemical elements either in organic or inorganic forms.	Soil contaminants are absent, or are present at levels that do not adversely affect other resources. Application of all organics and chemicals is in compliance with all federal, state, and local laws. Plant production is not limited by excessive soil contaminants.	Nutrient Management 590; Pest Management 595.	Soil tests conducted by the University of Delaware Soil Testing Laboratory or other testing laboratory whose techniques are consistent with the University of Delaware.

WATER			
RESOURCE CONSIDERATION: QUANTITY			
Description of Concerns and Problems	Quality Criteria for Treatment	Frequently Used Practices	Assessment Tools
Excess Surface Water – Water accumulates on the surface of the land due to ponding or flooding or subsurface water from springs or seeps flows across the surface of the land. Excess water adversely affects the growth of desired plants, causes damage to land or	Water is controlled to the extent that there is no observable damage to land, crops, or structures, and use of an area is not impaired. Control and management of excess surface water is in accordance with all applicable federal, state, and	Subsurface Drain 606; Structure for Water Control 587; Surface Drainage, Field Ditch 607; Surface Drainage, Main or Lateral 608.	Visual evidence of ponding, flooding, or springs/seeps. Historical photography and client records may also be helpful.
structures, or impairs the use of an area.	local regulations.		Hydrologic assessment for the appropriate storm frequency (e.g., the 10-year, 24-hour storm event).
			Soil survey data.
water accumulates in the soil profile to an extent that plant growth or use of an area is adversely affected.	Subsurface water is reduced to a level that does not restrict the desired land use. Control and management of excess subsurface water is in accordance with all applicable federal, state, and local regulations.	Subsurface Drain 606; Surface Drainage, Field Ditch 607; and Surface Drainage, Main or Lateral 608.	Visual evidence of saturated soil conditions. Historical photography and client records may also be helpful.
			On-site investigation of the soil profile to determine seasonal water table levels.
			Soil survey data for seasonal high water tables.
sufficient water is limiting agricultural identification	Additional water is supplied to meet the identified needs by use of wells, ponds,	Spring Development 574; Structure for Water Control 587; Pond 378; Water Well 642; Watering Facility 614; Irrigation Water Management 449.	Client records and verbal information.
production, fish habitat, or human use of an area.	water control structures, irrigation systems, or other applicable measures. Irrigation water is managed according to the irrigation management plan. Water is supplied in accordance with all applicable federal, state, and local regulations.		Local climate data and rainfall records.

WATER			
RESOURCE CONSIDERATION: QUALITY			
Description of Concerns and Problems	Quality Criteria for Treatment	Frequently Used Practices	Assessment Tools
Sediment – Excessive levels of sediment are degrading uses of surface water for human consumption, irrigation, livestock watering, fish and wildlife habitat, or other purposes.	Sediment delivery to surface water is reduced to levels that do not adversely affect water use. Water meets applicable federal, state, and local standards for the intended use.	Conservation Cover 327; Critical Area Planting;342; Filter Strip 393; Riparian Forest Buffer 391; Streambank and Shoreline Protection 580.	SCS-TP-161 – "Water Quality Indicators Guide: Surface Waters" (SCS, 1991). "Stream Visual Assessment Protocol" (NRCS, 1999).
Nutrients and Organics – Surface and groundwater pollution problems are occurring due to the application of natural, manufactured, animal, or other sources of nutrients. Excessive levels of nitrogen, phosphorus, or total organic carbon are impairing water use.	Application of all added nutrients and organic matter is in balance with plant requirements, considering all nutrient sources, yield goals, climatic factors, and methods of application. Nutrients and animal wastes are applied at rates, forms, and times so that there is no significant runoff beyond field boundaries. Applicable federal, state, and local regulations are followed. Water meets applicable federal, state, and local standards for intended use. Risk assessment, using an appropriate assessment method, results in an acceptable rating or the minimum standards for Nutrient Management 590 are met.	Composting Facility 317; Filter Strip 393; Nutrient Management 590; Riparian Forest Buffer 391; Waste Storage Facility 313; Waste Treatment Lagoon 359; Wastewater Treatment Strip 635.	Protocol* (NRCS, 1999). Local, state, or federal water quality studies. Well testing. Soil testing (PSNT, Indices and Stalk Nitrate Test, or other tissue tests for other crops to monitor available nutrients). Nitrate Leaching Index. Phosphorus Leaching Index.
Pathogens – Excessive levels of pathogens such as bacteria, viruses, protozoa, or fungi are found in surface or groundwater, and are impairing water use. Excessive levels of pathogens may result from improper treatment and application of animal wastes and sewage sludge.	Pathogens are reduced to levels that do not adversely affect the use of ground or surface water. Sewage sludge and animal wastes are properly treated and applied. Water meets applicable federal, state, and local standards for the intended use.	Composting Facility 317; Nutrient Management 590; Waste Storage Facility 313; Waste Treatment Lagoon 359; Wastewater Treatment Strip 635.	

WATER **RESOURCE CONSIDERATION: QUALITY (continued)** Description of Concerns and Problems **Quality Criteria for Treatment** Frequently Used Practices Assessment Tools Local, state, or federal water **Heavy Metals** – Excessive levels of metals Heavy metals are reduced to levels that Nutrient Management 590. quality studies. do not adversely affect the use of ground such as chromium, iron, lead, zinc, copper, and cobalt impacting surface or groundwater. or surface water. Effluents, sludge, and Well testing. Heavy metals can occur in industrial other wastes are properly treated and Soil testing. effluents, sewage sludge, or other municipal applied. The actions of the decision maker do not contribute to the wastes. degradation of surface and groundwater. Activities are in compliance with applicable federal, state, and local requirements. Local, state, or federal water **Pesticides** – Excessive levels of pesticides Pesticides are applied in accordance with Conservation Crop Rotation quality studies. are impacting surface or groundwater. all label requirement. The actions of the 328; Pest Management 595. Pesticides include chemicals that are used to Well testing. decision maker do not contribute to the manage weeds, insects, and diseases. degradation of surface and groundwater. WIN-PST. Pertinent federal, state, and local regulations are followed so that water quality standards are not violated. Risk assessment, using an appropriate assessment method, results in an acceptable rating or the minimum standards for Pest Management 595 are met.

WATER			
RESOURCE CONSIDERATION: QUALITY (continued)			
Description of Concerns and Problems	Quality Criteria for Treatment	Frequently Used Practices	Assessment Tools
Temperature – The temperature of surface waters is adversely affected by human activities. High temperatures may result from removal of streambank vegetation (especially trees) that provide shade and from discharges of warm water from industrial, municipal, or agricultural sources.	The actions of the decision maker do not contribute to impaired surface water temperature. Activities are in compliance with applicable federal, state, and local requirements.	Tree/Shrub Planting 612; Riparian Forest Buffer 391; Streambank and Shoreline Protection 580.	On-site temperature monitoring. Local, state, or federal water quality studies. Stream Visual Assessment Protocol" (NRCS, 1999) and other rapid assessment protocols.
Aquatic Habitat Suitability – The ability of surface waters to support aquatic life is limited by poor riparian and in-stream habitat, high temperatures or turbidity, or reduced floodplain functions.	Conditions that limit aquatic habitat are improved to the extent that plants and animals of concern can grow, reproduce, and perpetuate at sustainable levels.	Conservation Cover 327; Filter Strip 393; Tree/Shrub Planting 612; Riparian Forest Buffer 391; Streambank and Shoreline Protection 580.	"Stream Visual Assessment Protocol (NRCS, 1999) and

AIR			
RESOURCE CONSIDERATION: QUALITY			
Description of Concerns and Problems	Quality Criteria for Treatment	Frequently Used Practices	Assessment Tools
Airborne Sediment and Particulates – Particulates are impairing visibility, causing equipment, structural, or health problems.	Particulate movement is controlled so as not to impair visibility, damage equipment or structures, or cause human or animal health problems. Activities are in compliance with applicable federal, state, and local requirements.	Conservation Cover 327; Critical Area Planting 342; Windbreak/Shelterbelt Establishment 380.	Visual evidence of airborne sediment or smoke. Local air quality indexes. Local monitoring data for particulate matter (Clean Air Act monitoring).
Airborne Chemical Drift – Pesticides and nutrients that are applied on or above the land surface are moving beyond intended site of application, causing damage to adjacent land and water areas or to human and animal health.	Airborne drift of chemicals is controlled so that damage does not occur to adjacent lands and waters or to human and animal health. Chemicals are applied according to the label and in compliance with all applicable federal, state, and local regulations.	Nutrient Management 590; Pest Management 595; Windbreak/Shelterbelt Establishment 380.	Visual evidence of offsite impacts from chemical drift (e.g., dead or weakened plants and animals adjacent to chemical application areas).
Airborne Odors – Objectionable odors are emanating from sources such as poultry houses, other confined livestock areas, waste lagoons, and field application of animal wastes and other organic matter.	Offensive odors are controlled or minimized so that they are not chronically objectionable to surrounding residents and communities. Reasonable odor control measures are implemented. Concerns of nearby residents are taken into consideration before field applying animal wastes. Activities are in compliance with applicable federal, state, and local requirements.	Windbreak/Shelterbelt Establishment 380; Nutrient Management 590.	On-site observations of objectionable odors. Complaints from neighbors. NRCS – Agricultural Waste Field Handbook. Managing Livestock Odor, NRCS Mid-Atlantic IRT Technical Note #8.

PLANTS RESOURCE CONSIDERATION: HEALTH AND PRODUCTIVITY **Description of Concerns and Problems** Frequently Used Practices Assessment Tools Quality Criteria for Treatment Conservation Cover 327: Visual evidence of poor plant **Suitability** – Plants are unsuitable for the Plants selected, or being managed, are intended use or are not adapted to site suitable for the intended use, and are Critical Area Planting 342; quality and quantity. adapted to the soil and climactic conditions. As a result, the quantity and Pasture and Hay Planting 512; NRCS planting guides and conditions of the area. Alternatively, site quality of plants for crops, forage, timber Tree/Shrub Establishment iobsheets. production, protective cover, wildlife habitat, conditions are improved to support the 612: Windbreak/Shelterbelt or landscaping is not sufficient to meet desired existing plant community. Productivity is Establishment 380; Wetland PLANTS database. sufficient to meet the client's objectives yield goals or other management objectives. Restoration 657. and does not result in degradation of other resources. Plants selected are not considered invasive. **Establishment and Management** – The Appropriate establishment techniques are Brush Management 314; proper techniques and timing are not used for used to meet plant needs and the client's Conservation Cover 327; site preparation, planting, and management, objectives. Site preparation, planting, and Critical Area Planting 342: resulting in poor survival, growth, and/or management is done at the recommended Pasture and Hay Planting 512; productivity of desired plant species. time and manner to enhance survival. Forage Harvest Management 511: Forest Stand growth, and productivity of desired Improvement: Tree/Shrub species. Establishment 612: Cropland, pasture, hayland: The desired Windbreak/Shelterbelt crop is a healthy, vigorous stand capable Establishment 380: Wetland of meeting at least 75% of the producer's Restoration 657. yield goal. Woodland: Forest overstory stocking levels are within acceptable levels as determined by a professional forester.

PLANTS RESOURCE CONSIDERATION: HEALTH AND PRODUCTIVITY Description of Concerns and Problems Frequently Used Practices Quality Criteria for Treatment Assessment Tools Visual evidence of poor plant **Nutrients** – Plants are yellow, stunted, or Nutrient Management 590. Nutrients are available to meet the needs stressed. The correct amount of plant of plants, without having adverse effects quality and quantity. nutrients is not available to meet plant needs. on other resources. A nutrient University of Delaware This results in reduced growth and low plant management plan is being followed. guidance for crop nutrient productivity that is not sufficient to meet requirements. desired yield goals or other management objectives. Soil test analysis. Pests – Insects, disease, wildlife, or Pests are managed based on threshold Brush Management 314; Pest Visual evidence of damage competition from undesirable plant species levels (where available) to achieve the Management 595. due to plant pests. (e.g., weeds, invasive species) are causing client's desired production levels. Pest University of Delaware significant damage to crops or other desired management does not result in the guidance for integrated pest plant species. Productivity is not sufficient to degradation of other resources. Noxious management. meet desired yield goals or other management weeds are controlled according to state objectives. law. Client records and verbal

information.

ANIMALS RESOURCE CONSIDERATION: HEALTH AND PRODUCTIVITY--LIVESTOCK Description of Concerns and Problems **Quality Criteria for Treatment** Frequently Used Practices Assessment Tools **Food** – Food is not available in sufficient Food is provided to meet the nutritional Conservation Cover 327: Visual evidence of insufficient quantity, quality, or distribution to meet the requirements of livestock. Health, Pasture and Hay Planting 512; food, water, cover/shelter. seasonal requirements of livestock. Desired Prescribed Grazing 528A. growth, reproduction, lactation, and Recommended vs. actual production goals or other management general well being are in accordance with stocking rates for available objectives are not met. accepted criteria. Water - Water is not available in sufficient Water supply is of sufficient quality and Spring Development 574; Client records and verbal quantity, quality, or distribution to meet the quantity and is properly distributed to Structure for Water Control information. seasonal requirements of livestock. Desired meet daily needs of the species of 587: Pond 378: Water Well production goals or other management concern. 642; Watering Facility 614. objectives are not met. **Cover or Shelter** – Adequate cover or shelter Livestock are provided with adequate Pond 378: Tree/Shrub is not available to protect livestock from the shelter to protect them from inclement Establishment 612: adverse effects of seasonal weather extremes. weather. Windbreak/Shelterbelt Desired production goals or other Establishment 380. management objectives are not met. Growth, Reproduction, and Condition -Poisonous plants, diseases, parasites, and Pest Management 595; Visual evidence of poor Poor health of livestock is resulting in reduced insects are controlled at acceptable levels Prescribed Grazing 528A. animal health. milk production, egg production, weight gain, so that animal health is not degraded. Client records and verbal or reproduction. Stocking rates are reduced to an information. acceptable level, or production facilities are expanded to support a healthy

population.

ANIMALS			
RESOURCE CONSIDERATION: HEALTH AND PRODUCTIVITYLIVESTOCK (Continued)			
Description of Concerns and Problems	Quality Criteria for Treatment	Frequently Used Practices	Assessment Tools
Degradation of Other Resources – High populations of livestock are exceeding the carrying capacity of the management unit, resulting in degradation of soil, water, air, plants, or other animal communities.	Stocking rates are managed at levels that can be supported on the management unit without degrading other resources.	Fence 382; Prescribed Grazing 528A.	Visual evidence of degradation of soil, water, air, plants, or other animal communities.
RESOURCE CONSIDERATION: HEALTH AND PRODUCTIVITYFISH AND WILDLIFE			
Description of Concerns and Problems	Quality Criteria for Treatment	Frequently Used Practices	Assessment Tools
Food, Cover, and/or Water – Food, cover, and/or water are not available in sufficient quantity, quality, or distribution to meet the seasonal requirements of desired fish and wildlife species.	Food, cover, and water are provided as appropriate to meet the seasonal needs of the desired species. Upland habitat has a quality rating of 0.5 or better.	Conservation Cover 327; Hedgerow Planting 422; Pond 378; Riparian Forest Buffer 391; Shallow Water Area for Wildlife 646; Tree/Shrub Establishment 612; Upland Wildlife Habitat Management 645; Wetland Creation 658; Wetland Restoration 657; Wetland Wildlife Habitat Management 644.	Delaware NRCS Wildlife Habitat Evaluation Worksheets. Visual evidence of insufficient food, cover, and/or water. Client records and verbal information.
Degradation of Other Resources – High populations of fish and wildlife are exceeding the carrying capacity of the management unit, resulting in degradation of soil, water, air, plants, or other animal communities.	Fish and wildlife populations are controlled to the extent feasible, in accordance with applicable federal, state, and local regulations.	Fence 382; Fishpond Management 399; Pest Management 595; Upland Wildlife Habitat Management 645; Wetland Wildlife Habitat Management 644.	Visual evidence of degradation of soil, water, air, plants, or other animal communities. Local, state, or federal wildlife population studies and resource assessments.